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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,549	10/07/2003	Kamal Jain	M1103.70141US00	5005
45840	7590	03/22/2006	EXAMINER	
WOLF GREENFIELD (Microsoft Corporation) C/O WOLF, GREENFIELD & SACKS, P.C. FEDERAL RESERVE PLAZA 600 ATLANTIC AVENUE BOSTON, MA 02210-2206			AJIBADE AKONAI, OLUMIDE	
			ART UNIT	PAPER NUMBER
			2617	
DATE MAILED: 03/22/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/680,549	Applicant(s) JAIN ET AL.	
	Examiner Olumide T. Ajibade-Akonai	Art Unit 2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-18 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to because of the following informalities.

Figure 4 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it includes the following reference character(s) not mentioned in the description: Figure 4 contains reference number 312, which is not disclosed in the specification.

Figure 4 does not include the following reference sign(s) mentioned in the description: reference number 400, which occurs in the specification on page 12, paragraph [0041].

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 18 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Regarding **claim 18**, the claimed instructions contained in the computer-readable medium do not define any structural or functional interrelationship between the instructions and other claimed aspects of the invention which permit the instruction's functionality to be realized, and thus it is nonstatutory. A claimed computer-readable medium encoded with a computer program or containing executable instructions is a computer element which defines structural and functional interrelationships between the rest of the instructions and the rest of the computer which permit the instruction's functionality to be realized, and is thus statutory.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 5-8 and 13-18 are rejected under 35 U.S.C. 102(e) as being anticipated by **Chow (6,771,996)**.

Regarding **claims 1 and 18**, Chow discloses a method and computer readable medium (radio network planning tool, see col. 10, lines 29-34) of modeling wireless interference among wireless links between a plurality of wireless nodes in a wireless network, the method comprising: accepting connectivity information (node site information, see fig. 6, col. 20, lines 4-62) for the network (automated radio network planning tool receives information on existing links, indicating that it received the link or connectivity from the plurality of node sites at the radio site locations, see fig. 2, col. 10, lines 29-41, col. 11, lines 1-11); identifying wireless links between nodes of the network from the connectivity information (potential links are computed to connect the nodes in the network, see fig. 2, col. 11, lines 32-52); representing each identified link as a vertex (links 1-10, see fig. 3A, col. 12, lines 44-58); and creating an edge between a first vertex and a second vertex if the corresponding wireless links interfere with one another (node sites, see fig. 3A, col. 12, lines 44-52).

Regarding **claim 2**, as applied to claim 1, Chow further discloses wherein the connectivity information (node site information, see fig. 6, col. 20, lines 4-62) is represented by a connectivity graph (see figs 5 and 6, col. 20, lines 44-62).

Regarding **claim 3**, as applied to claim 1, Chow further discloses assigning to the edge a weight of zero (0) if the links are not in conflict with each other (links interfering with other links are designated by the number 0, see col. 13, lines 61-61); and assigning

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to the edge a weight of one (1) if the links are in conflict with each other (links that can coexist without mutual interferences are designated with the number 1, see col. 13, lines 54-65).

Regarding **claim 5**, as applied to claim 1, Chow further discloses wherein each node is equipped with exactly one radio (each node site is a radio site location, see col. 11, lines 1-10).

Regarding **claim 7**, as applied to claim 1, Chow further discloses wherein all nodes communicate on exactly one wireless channel (see fig. 3B, col. 14, lines 35-39).

Regarding **claim 8**, as applied to claim 1, Chow further discloses wherein each node may communicate on a plurality of wireless channels (10 different links or paths, see fig. 3A, col. 12, lines 44-53).

Regarding **claim 13**, as applied to claim 1, Chow further discloses wherein the wireless links have different capacities (mutually independent and mutually exclusive links, see col. 11, lines 53-64).

Regarding **claim 14**, as applied to claim 1, Chow further discloses wherein a receiving node must be free of interference for a transmission to be successful (radio links are selected to minimize interference between the radio links, therefore indicating that the links selected to join the nodes to each other have minimal interference, see col. 9, lines 47-67, col. 10, lines 1-19).

Regarding **claim 15**, as applied to claim 1, Chow further discloses wherein a sending node must be free of interference for a transmission to be successful (radio links are selected to minimize interference between the radio links, therefore indicating

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that the links selected to join the nodes to each other have minimal interference, see col. 9, lines 47-67, col. 10, lines 1-19).

Regarding **claim 16**, as applied to claim 1, Chow further discloses making routing decisions based on created edges and vertices (all possible links with and without restrictions are identified and the RF planning tool selects the preferred links to provide communication utilizing parameters such as number of link hops between nodes and the switching center, average number of link hop between particular nodes, link distances and other criteria, see fig. 5, col. 27, lines 6-24).

Regarding **claim 17**, as applied to claim 1, Chow further discloses making network infrastructure decisions based on the created edge and vertices (the automated radio network planning tool provides ability to build out the communication network based on the analysis of existing, currently desired and future wireless links, see col. 10, lines 34-41).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow (6,771,996)** in view of **Hung et al 2005005811 (hereinafter Hung)**.

Regarding **claim 10**, as applied to claim 1, Chow discloses the claimed invention except wherein each node is equipped with a plurality of directional antennae.

In the same field of endeavor, Hung discloses a node (WLAN with smart antenna system, see fig. 3, p.2, [0021]) that is equipped with a plurality of directional antennae (smart antenna system of WLAN is composed of array antennas, see fig. 3, p.2, [0021]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Hung with Chow for the benefit of increasing the number users in a WLAN system.

Regarding **claim 11**, as applied to claim 1, Chow discloses the claimed invention except wherein each node is equipped with a plurality of omni-directional antennae.

In the same field of endeavor, Hung discloses a node (WLAN with smart antenna system, see fig. 3, p.2, [0021]) that is equipped with a plurality of omni-directional antennae (smart antenna system of WLAN is composed of array antennas, and the array antennae are composed of a plurality of omni-directional antennas, see fig. 3, p.2, [0021]).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Hung with Chow for the benefit of increasing the number users in a WLAN system.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chow (6,771,996)** in view of **Stanley (6,836,467)**.

Regarding **claim 12**, as applied to claim 1, Chow discloses the claimed invention except wherein all wireless links have equal capacities.

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In the same field of endeavor, Stanley discloses wherein all wireless links have equal capacity (radioports 22 of communication network 20 have equal channel capacity, see fig. 1, col. 9, lines 26-42 and col. 11, lines 36-45).

It would therefore have been obvious to one of ordinary skill in the art to combine the teaching of Stanley into the system of Chow for the benefit of determining a system architecture for radioports in a wireless communication system.

OFFICIAL NOTICE

9. Regarding **claim 9**, as applied to claim 1, Chow discloses the claimed limitations, but fails to explicitly teach wherein each node is equipped with exactly one omni-directional antenna.

However, Examiner takes Official Notice that it is well known to have a node that is equipped with exactly one omni-directional antenna.

It would therefore have been obvious to one of ordinary skill in the art to have nodes that are equipped with a single omni-directional antenna since the Examiner takes Official notice that the use of nodes with exactly one omni-directional antenna is conventional and well known.

Allowable Subject Matter

10. Claim 4 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Dean 6,542,746 discloses a frequency reuse scheme for point to multipoint radio communication.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olumide T. Ajibade-Akonai whose telephone number is 571-272-6496. The examiner can normally be reached on M-F, 8.30p-5p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha D. Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OA


CHARLES APPIAH
PRIMARY EXAMINER